AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions of claims in the application.

1. (Currently Amended): An active muscle display unit comprising:

multiple electrodes that are arranged on a skin surface,

a surface electromyogram measuring part that measures a surface electromyogram on the skin surface at the multiple electrodes,

a motor unit separating part that estimates an individual motor unit constituting an active muscle and showing a predetermined firing pattern, based on the surface electromyogram measured by the surface electromyogram measuring part,

a motor unit position estimating part that estimates a position of [[the]] a firing motor unit, based on the individual motor unit estimated as the motor unit constituting to constitute the active muscle by the motor unit separating part, and

a display part that displays the individual motor unit estimated by the motor unit position estimating part in an image.

2. (Currently Amended): The active muscle display unit described in claim 1, and characterized by that wherein the motor unit separating part estimates the individual motor unit that shows a predetermined firing pattern from the surface electromyogram measured by the surface electromyogram measuring part, based on a multi-channel blind deconvolution method.

3. (Currently Amended): The active muscle display unit described in claim 1, ~~and~~ ~~characterized by~~ further comprising a motor unit firing pattern storing part that stores a distribution pattern of a firing interval and a surface electromyogram waveform of the individual motor unit based on physiological knowledge based on firing statistics of the motor unit or potential distribution formed by depolarization of a muscle fiber, [[and]]

wherein ~~checking~~ a time-series signal of each of said multiple electrodes separated by the motor unit separating part is checked against the individual motor unit whose distribution pattern of the firing interval and the surface electromyogram waveform are stored, and

wherein if a distribution pattern of a firing interval and a surface electromyogram waveform of the time-series signal ~~are in relationship to~~ coincide with the stored distribution pattern of the firing interval and the stored surface electromyogram waveform, the time-series signal is specified as the individual motor unit.

4. (Currently Amended): The active muscle display unit described in claim 1, ~~and characterized~~ ~~by that~~ wherein the motor unit position estimating part solves an inverse problem of a partial differential equation ~~that gives~~ representing an electrostatic field to reproduce [[its]] an electrode position potential of the individual motor unit based on an electrode position potential corresponding to the individual motor unit obtained by the motor unit separating part.

5. (Currently Amended): The active muscle display unit described in claim 1, ~~and characterized~~ ~~by that~~ wherein the motor unit position estimating part estimates a current source ~~by the use of~~

~~the~~ <u>using</u> Poisson's equation to reproduce [[its]] <u>a</u> potential <u>of the individual motor unit</u> based on an electrode position potential corresponding to the individual motor unit obtained by the motor unit separating part.

6. (Currently Amended): The active muscle display unit described in claim 1, ~~and characterized by that~~ <u>further</u> comprising a conductance distribution model storing part that stores a conductance distribution model,

wherein distribution and [[an]] arrangement of fat, bone, and muscle whose electrical conductance differs respectively in vivo, are modeled ~~in order~~ <u>so</u> that the motor unit position estimating part can solve an inverse problem.

7. (Currently Amended): The active muscle display unit described in claim 1, ~~and characterized by that~~ <u>further</u> comprising a motor unit depolarization model storing part that stores a depolarization mode of a motor unit ~~in order~~ <u>so</u> that the motor unit position estimating part can solve an inverse problem uniquely.

8. (Currently Amended): The active muscle display unit described in claim 1, ~~and characterized by that the above-mentioned~~ <u>wherein said</u> multiple electrodes are arranged in an array.

9. (Currently Amended): The active muscle display unit described in claim 1, ~~and characterized by that~~ <u>further comprising</u> a high-pass filter that passes a signal having a frequency component

not less than a predetermined frequency, is arranged and

wherein the surface electromyogram measured by the surface electromyogram measuring

part is passed through the high-pass filter.

10. (Currently Amended): The active muscle display unit described in claim 1, and characterized by that wherein the surface electromyogram measured by the surface electromyogram measuring part is normalized to an average of 0, and a distribution of 1.

11. (Currently Amended): The active muscle display unit described in claim 1, and characterized by that wherein the motor unit separating part learns the surface electromyogram measured by the surface electromyogram measuring part under a predetermined condition and estimates the individual motor unit constituting the firing muscle based on the learned surface electromyogram.

12. (Currently Amended): The active muscle display unit described in claim 1, and characterized by that further comprising a muscle distribution model storing part that stores a muscle distribution model, in which wherein a muscle fiber or a motor neuron constituting the individual motor unit is modeled, is arranged and

wherein the display part displays the individual motor unit extracted by the motor unit position estimating part in a state an overlapped state with the muscle distribution model.

13. (Currently Amended): The active muscle display unit described in claim 1, and

~~characterized by that~~ <u>further comprising</u> a measurement monitoring part that outputs the surface

electromyogram during measurement in [[an]] <u>the</u> image while the surface electromyogram is

measured is arranged and in case that the surface electromyogram that is estimated to be other

than the <u>individual</u> motor unit is output in [[an]] <u>the</u> image by the measurement monitoring part,

the surface electromyogram measuring part is set not to conduct the measurement.